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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,241	11/25/2003	Jorge Vicente Blasco Claret	2760-1-006	6055

7590 KLAUBER & JACKSON 4th Fl. 411 Hackensack Avenue Hackensack, NJ 07601		08/09/2007
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EXAMINER MATTIS, JASON E	
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ART UNIT 2616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,241

Applicant(s)

BLASCO CLARET ET AL.

Examiner

Jason E. Mattis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Both these claims use the term "preferably" in their claim language. The use of "preferably" makes the claims indefinite because it is not clear whether the limitations following "preferably" are a required part of the invention or not. It is recommended that this term and any similar language be removed from the claims.

Claim Objections

3. Claims 1-23 objected to because of the following informalities: Many of the claims appear to contain minor spelling and grammar errors. It is recommended that the claims be review closely to remove these errors. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 4, 8-11, 13-15, and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Gardner et al. (U.S. Publication US 2004/0081127 A1).

With respect to claim 1, Gardner et al. discloses a process to optimize communication for a multi user OFDM digital transmission system over the electricity network with various user equipments and a head-end equipment in two-way communication over the network **(See page 2 paragraph 15 and page 7 paragraphs 75-77 of Gardner et al. for reference to optimizing two-way communication between a networking control unit, which is a head-end equipment, and host devices, which are various user equipments, in an OFDM power-line based digital communication system)**. Gardner et al. also discloses optimization occurring in both the upstream and downstream channels **(See page 2 paragraph 18 of Gardner et al. for reference to optimizing the modulation used in each carrier of the two-way communication system, meaning both upstream and downstream carrier transmissions are optimized)**. Gardner et al. further discloses using frequency

division duplexing and time division duplexing (**See page 4 paragraph 47 and page 6 paragraph 62 of Gardner et al. for reference to using both FDMA and TDMA techniques to share both network spectrum and time-slot resources**). Gardner et al. also discloses using different modulation and forward error correction codes (**See page 2 paragraph 18 and page 9 paragraph 96 of Gardner et al. for reference to using different modulation techniques and forward error correction techniques for the different carriers of the system**). Gardner et al. further discloses estimating the signal to noise ratio in upstream and downstream channels (**See page 9 paragraph 91 of Gardner et al. for reference to updating a channel quality profile for each channel including determining the signal to noise ratio at each frequency of the channels**). Gardner et al. also discloses monitoring the state of the network at each moment by the user equipments (**See page 7 paragraph 76 of Gardner et al. for reference to host devices monitoring network state by received a beacon signal comprising correlations between circuit connections, carrier frequencies, and time-slots**). Gardner et al. further discloses selecting the optimum transmission mode based on the monitoring (**See page 9 paragraphs 91 and 94-98 of Gardner et al. for reference to selecting an optimum modulation mode for transmission of each carrier signal based on the monitored data**).

With respect to claim 2, Gardner et al. discloses estimating the S/N ratio where S/N estimation is adequate if the bit error rate is sufficiently low (**See page 10 paragraph 105 and page 13 paragraph 146 of Gardner et al. for reference to**

estimating the S/N ratio where an acceptable S/N ratio conforms to a maximum acceptable bit error rate).

With respect to claim 4, Gardner et al. discloses selectively estimating the power level of a signal using a normal level **(See page 9 paragraph 92 of Gardner et al. for reference to estimating signal level of a normalized sounding signal).**

With respect to claim 8, Gardner et al. discloses the head-end estimating the S/N ratio for a certain user equipment by ordering the user equipment to send specific information **(See page 7 paragraphs 77-78 of Gardner et al. for reference to the NCU measuring S/N ratio by requesting a host device send a sounding signal).**

With respect to claim 9, Gardner et al. discloses estimating the S/N ratio in various carriers received **(See page 10 paragraph 105 of Gardner et al. for reference to measuring the S/N ratio at each available frequency).**

With respect to claim 10, Gardner et al. discloses if S/N is sufficiently high according to a S/N threshold modulating with a greater density **(See page 15 paragraph 162 of Gardner et al. for reference to using a higher density modulation if a S/N ratio conforms to a maximum error threshold).** Gardner et al. also discloses if the S/N ratio is very low sending the same information at various times in various frequencies **(See page 9 paragraph 96 of Gardner et al. for reference to using a retransmission protocol to send the same signal multiple times when the S/N ratio is low enough to cause more than a maximum allowed number of bit errors).**

With respect to claim 11, Gardner et al. discloses varying the FEC, bits per carrier, constellation used, and transmission mode in conformance with the number of

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bits per information signal (**See page 9 paragraphs 92-97 of Gardner et al. for reference to varying FEC and modulation thereby varying the bits per carrier, constellation used, and transmission mode).**

With respect to claims 13-15, Gardner et al. discloses introducing greater redundancy when the S/N ratio is below a previously established value (See page 9 paragraph 96 and page 15 paragraph 162 for reference to adjusting the modulation used and retransmitting packets when the S/N ratio indicates the bit error rate above a maximum acceptable threshold).

With respect to claim 21, Gardner et al. discloses storing the channel information in tables in the user and head-end equipments (See page 7 paragraph 75 of Gardner et al. for reference to storing channel information in resource allocation profile tables).

With respect to claim 22, Gardner et al. discloses sending the same information to a group of users by transmitting with a selected modulation constellation and adding sufficient redundancy (See page 7 paragraph 76 and page 9 paragraph 96 of Gardner et al. for reference to broadcasting a beacon signal using a selected modulation constellation and adding sufficient redundancy using FEC).

With respect to claim 23, Gardner et al. discloses the head-end indicating the number of bits per carrier by means of message headers that are sent to the group (See page 7 paragraph 76 and page 9 paragraph 96 of Gardner et al. for reference to using the beacon signal to inform users of the currently allocated channel information including modulation information).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. in view of Wynn (U.S. Pat. 6313738 B1).

With respect to claim 3, Gardner et al. discloses estimating noise power by means of the demodulator of both the user and head-end equipment (**See page 10 paragraph 105 of Gardner et al. for reference to a signal to noise unit that measures noise power**). Gardner et al. does not disclose using weighted mean squared noise power measurements over a number of symbols.

With respect to claim 3, Wynn, in the field of communications, discloses using weighted mean squared noise power measurements over a number of symbols (**See column 4 line 59 to column 5 line 14 of Wynn for reference to using weighted mean squared noise power measurements over a number of symbols**). Using weighted mean squared noise power measurements over a number of symbols has the advantage of providing a more accurate measure of current noise power.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Wynn, to combine using weighted mean squared noise power measurements over a number of symbols, as suggested by Wynn, with the system and method of Gardner et al., with the motivation being to provide a more accurate measure of current noise power.

8. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. in view of Caso et al. (U.S. Pat. 6236687 B1).

With respect to claims 5-7, Gardner et al. discloses carriers sent having a pre-established fixed modulation known to all user equipment (See page 9 paragraph 92 of Gardner et al. for reference to sending sounding signals having a pre-established fixed modulation known to all host devices). Gardner et al. does not disclose accumulating an error signal for M symbols with P measures.

With respect to claims 5-7, Caso et al., in the field of communications, discloses accumulating an error signal for a number of symbols and measures (See column 4 line 57 to column 5 line 10 of Caso et al. for reference to accumulating error signals for a number of symbols and measures). Accumulating an error signal for a number of symbols and measures has the advantage of allowing error calculation to be smoothed over time to reduce spikes in a measured S/N ratio.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Caso et al., to combine accumulating an error signal for a number of symbols and measures, as suggested by Caso et al., with

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the system and method of Gardner et al., with the motivation being to allow error calculation to be smoothed over time to reduce spikes in a measured S/N ratio.

9. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al.

With respect to claim 12, Gardner et al. discloses using hysteresis margins to change modulations (**See page 15 paragraph 165 of Gardner et al. for reference to using an efficiency threshold to determine when to change modulations to avoid rapid modulation changes**). Gardner et al. also discloses sending the decisions regarding modulation changes (**See page 15 paragraph 166 of Gardner et al. for reference to broadcasting new channel modulation selections**). Although Gardner et al. does not disclose awaiting confirmation of modulation changes, received acknowledgements of modulation changes is old and well known in the art of communications. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine waiting for acknowledgements of modulation changes with the system and method of Gardner et al., with the motivation being to confirm that a requested change in modulation has been received.

10. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. in view of Baghdady (U.S. Pat. 5339334).

With respect to claims 16 and 17, Gardner et al. does not disclose selectively combining multiple received signals to estimate a transmitted signal.

With respect to claims 16 and 17, Baghdady, in the field of communications discloses selectively combining multiple received signals to estimate a transmitted signal (**See column 12 lines 50-64 of Baghdady for reference to using a weighted signal combination to selectively combine received signals to estimate a transmitted signal**). Selectively combining multiple received signals to estimate a transmitted signal has the advantage of using redundancy to eliminate transmission errors.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Baghdady, to combine selectively combining multiple received signals to estimate a transmitted signal, as suggested by Baghdady, with the system and method of Gardner et al., with the motivation being to use redundancy to eliminate transmission errors.

11. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. in view of Yonge et al. (U.S. Publication US 2002/0188908 A1).

With respect to claims 18-20, Gardner et al. does not disclose dynamically modifying the FEC.

With respect to claim 18-20, Yonge et al., in the field of communications, discloses dynamically modifying FEC (**See the abstract of Yonge et al. for reference to dynamically change FEC**). Dynamically modifying FEC has the advantage of allowing error correction redundancy to be altered during operation according to channel characteristics.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Yonge et al., to combine discloses dynamically modifying FEC, as suggested by Yonge et al., with the system and method of Gardner et al., with the motivation being to allow error correction redundancy to be altered during operation according to channel characteristics.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E. Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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